

Examining the use of in-situ audio annotations to provide feedback to students

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Feedback



Providing feedback

“the process itself takes on the forms of new instruction, rather than informing the student solely about correctness”

Kulhavy, R. W. (1977). Feedback in written instruction. Review of Educational Research, 47(1), 211–232.



Problems with feedback



“A satisfactory effort. More critical analysis of key issues would have helped.”

“This is the sum of the feedback. The Professor obviously thinks that, for me, a 2:2 is satisfactory, but I don’t. I’m dismayed that this was no more than he expected from me. More critical analysis? I thought I had analysed the main issues thoroughly and been critical—maybe not. I thought I knew what critical analysis involved—maybe I do not know after all. I wanted the tutor to engage with what I had written, to provide a personal critique of my work, but his comments do not live up to the level of critical analysis that I expect him to employ.”

Higgins, R., Hartley, P. and Skelton, A. 2001. Getting the message across: the problem of communicating assessment feedback, *Teaching in Higher Education*, 6(2), 269-274.

Some problems with feedback

- ✦ Volume/specificity of feedback
- ✦ Misunderstood
- ✦ De-contextualisation
- ✦ Feedback hurts not helps understanding



Massification & Personalisation

- ✦ Increasing class size
- ✦ Open education
- ✦ Unrestricted access
- ✦ Underfunding
- ✦ Individualised
- ✦ Rich and specific
- ✦ Affective
- ✦ Situated



Documenting feedback

- ✦ Here we are focussing on document feedback
 - ✦ That is feedback that is mediated through the annotation of the document
- ✦ Many forms of *in-situ* (in-line) annotation:

Hand written

Typed Text

Highlighted

Embedded
Media



Audio (Embedded Media)



“The student responses suggest a greater responsiveness to receiving information verbally, which may underpin a deeper engagement with the feedback provided.”

Ribchester, C., France, D. and Wakefield, K. 2008. It was just like a personal tutorial': Using podcasts to provide assessment feedback. In HE Academy Annual Conference 2008, Harrogate, 1-3 July, 2008. [Online]. Available from: http://www.heacademy.ac.uk/assets/York/documents/events/conference/2008/Chris_Ribchester.doc [accessed 16 April, 2010].

Questions around feedback

- ✦ “Do students actually look at feedback?”
- ✦ “Whats more important, the grade or the feedback?”
- ✦ “How can I provide better feedback to students?”
- ✦ “Is my time being wasted?”
- ✦ “What is the impact of my feedback?”



Research Questions

- Markers

- Characteristics of feedback?
- Utilisation of feedback types, modalities, placement?

- Students

- Is it attended to?
- Does the final mark supercede feedback?
- Response to feedback types, modalities, placement?



UQM Markup

UQMarkup In-situ feedback

Introduction

mattis congue. Curabitur sodales vehicula volutpat. Mauris blandit mauris sem, a ultrices sapien. Nullam ipsum lectus, pulvinar eget aliquet malesuada, pulvinar et nisi. Nunc porta ullamcorper mi, a sagittis lacus bibendum sed. Vestibulum et lacus justo, a mattis erat. Cras non augue a tellus dictum mattis at a dui. Suspendisse facilisis iaculis est, id gravida ligula interdum nec. Maecenas sagittis dapibus nisi, id euismod enim dignissim vitae. Ut sit amet massa in massa pretium congue. Sed eget velit metus. Praesent pulvinar cursus dolor ut adipiscing. Nulla facilisi. Quisque augue turpis, mollis eu tincidunt quis, vehicula nec dui. Nunc fringilla tempor lacus tvariis. Cras eget tellus purus. Cras eget orci sit amet ante consectetur sagittis. Aliquam nulla mauris, blandit vitae pulvinar eu, dapibus ac tortor. Maecenas luctus gravida mi eu porttitor.

Humans

Nulla felis elit, ornare sed venenatis eu, iaculis sed massa. Curabitur tempor eros id sem vehicula sodales. Duis id dui purus, non rutrum eros. Integer a neque elit. Nulla leo quam, auctor aliquet malesuada vel, aliquam ac magna. Duis auctor posuere gravida. Donec commodo consectetur lacus sed pulvinar. Nam facilisis scelerisque quam, eget rhoncus tellus condimentum eget. Morbi nec quam tortor, non imperdiet erat. Proin ac odio id magna bibendum tincidunt id quis purus. Nullam aliquet ante in enim iaculis tempor. Sed sit amet nisi nunc. Etiam hendrerit sagittis dignissim. Pellentesque auctor, mi eget feugiat sagittis, augue purus consectetur augue, a laoreet nibh urna id erat. Aenean ultrices diam sed mauris dictum molestie. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus.

UQMarkup - the application

- ✦ Supports teacher to student feedback
- ✦ Provide feedbacks through *in-situ* annotations (text, highlight, drawing, audio) embedded in the document
- ✦ Allows feedback receivers to review feedback (including interactive audio) via browser
- ✦ Captures data on this process
- ✦ Scalable to large classes - built for current ubiquitous technologies



Research/Experimental Design



UQMarkUp v2.0
Experimental Design

UQMarkup

- ✦ Trained in three university courses (science)
 - ✦ 1st year **presentation and report** (BIOL1040)
 - ✦ 1st year **prac report** (BIOL1040)
 - ✦ 2nd year **draft essay** (PHYS2064)
- ✦ 785 students received feedback in the system
- ✦ Usage data, interaction data
- ✦ Post semester interviews, and surveys (ongoing)

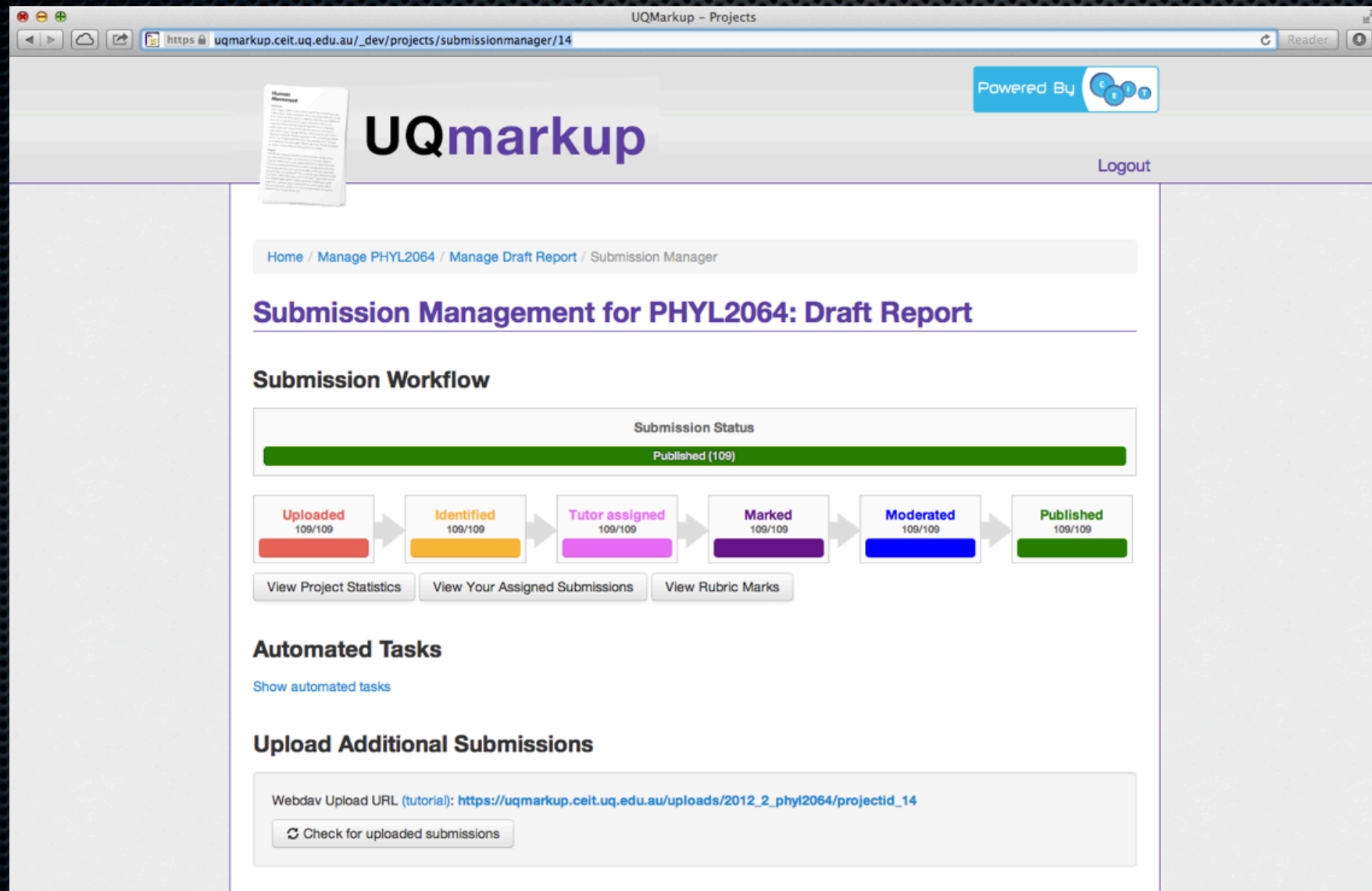


UQMarkup

- ✦ Four components of the application:
 1. Administration panel for organising the process
 2. iPad interface for providing feedback (marker)
 3. Web interface for receiving feedback (student)
 4. On the fly analytics for the feedback process

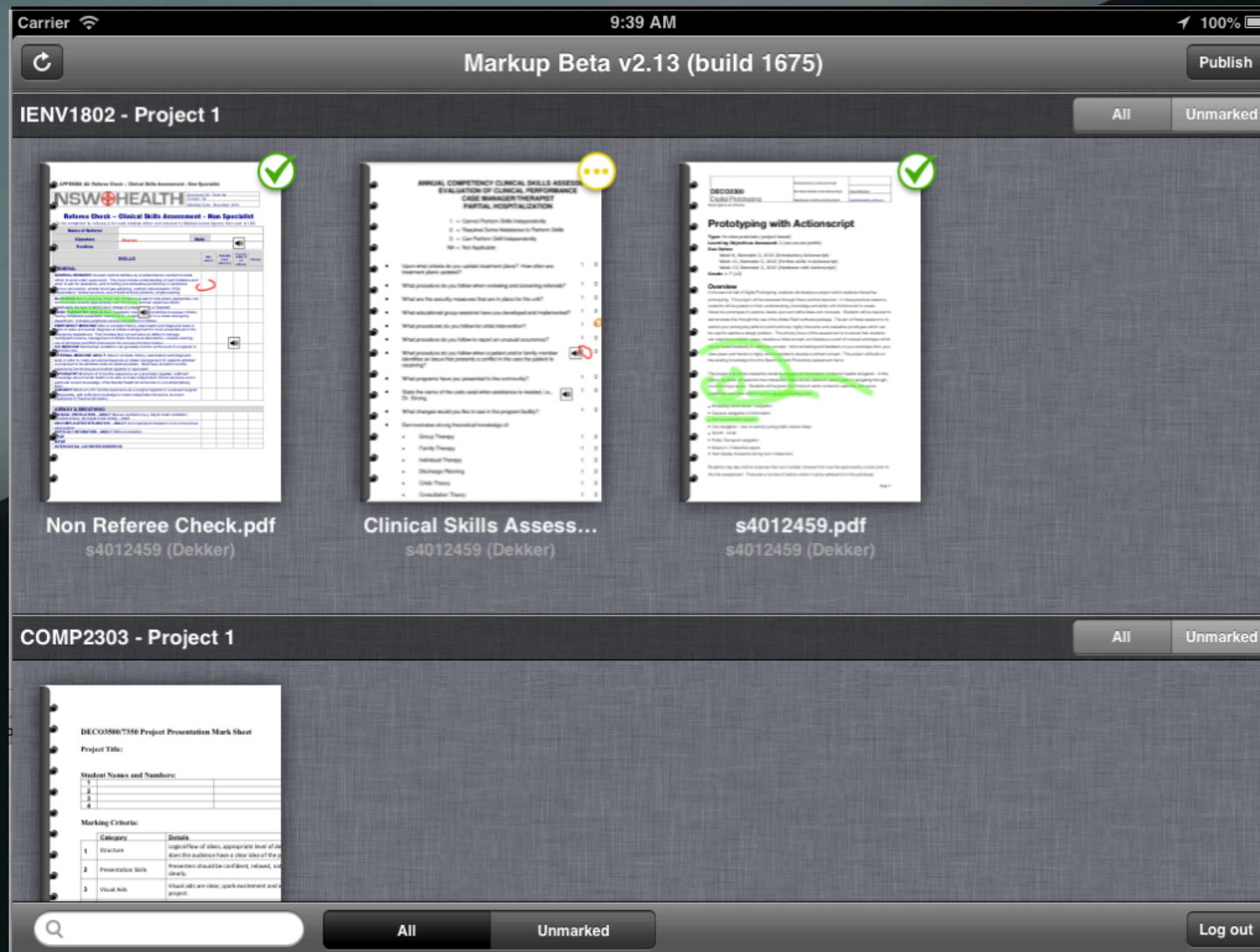


1. Administration Panel



The screenshot displays the UQmarkup Administration Panel in a web browser. The browser's address bar shows the URL https://uqmarkup.ceit.uq.edu.au/_dev/projects/submissionmanager/14. The page header includes the UQmarkup logo, a 'Powered By' badge with the CEIT logo, and a 'Logout' link. A breadcrumb trail reads: Home / Manage PHYL2064 / Manage Draft Report / Submission Manager. The main heading is 'Submission Management for PHYL2064: Draft Report'. Below this, the 'Submission Workflow' section features a 'Submission Status' bar indicating 'Published (109)'. A horizontal flowchart shows the submission process: 'Uploaded' (109/109) → 'Identified' (109/109) → 'Tutor assigned' (109/109) → 'Marked' (109/109) → 'Moderated' (109/109) → 'Published' (109/109). Below the flowchart are three buttons: 'View Project Statistics', 'View Your Assigned Submissions', and 'View Rubric Marks'. The 'Automated Tasks' section includes a link to 'Show automated tasks'. The 'Upload Additional Submissions' section provides a 'Webdav Upload URL (tutorial): https://uqmarkup.ceit.uq.edu.au/uploads/2012_2_phyl2064/projectid_14' and a 'Check for uploaded submissions' button.

2. iPad Application



2. iPad Application



Carrier 6:45 PM 100%

T

Clinical Skills Assessme... Clear Annotations Done

PARTIAL HOSPITALIZATION

1 = Cannot Perform Skills Independently
2 = Requires Some Assistance to Perform Skills
3 = Can Perform Skill Independently
NA = Not Applicable

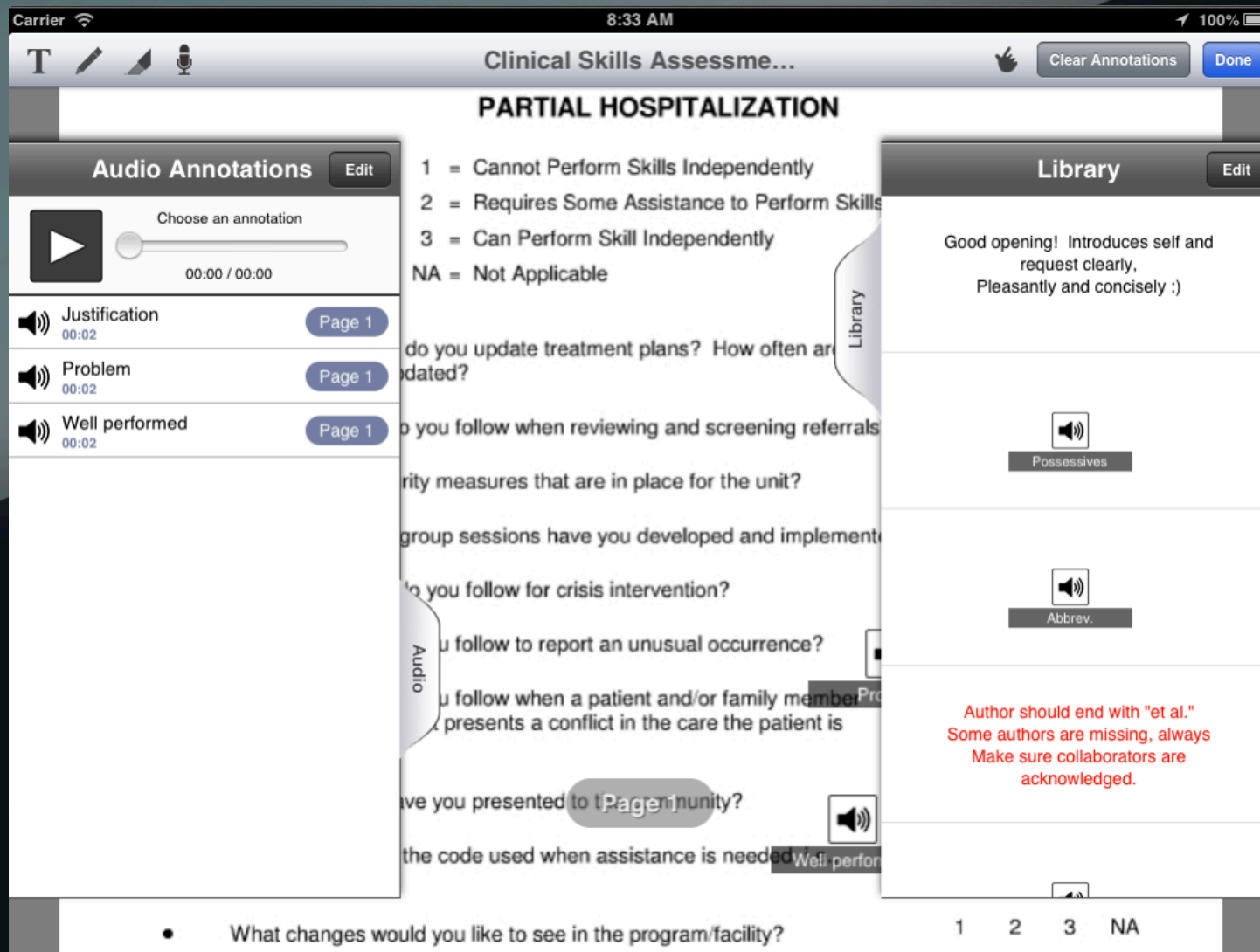
Rubrics Library

- Upon what criteria do you update treatment plans? How often are treatment plans updated? 1 2 **3** NA
- What procedure do you follow when reviewing and screening referrals? 1 2 **3** NA
- What are the security measures that are in place for the unit? 1 2 NA
- What educational group sessions have you developed and implemented? 1 2 Justification NA
- What procedures do you follow for crisis intervention? 1 3 NA
- What procedure do you follow to report an unusual occurrence? 1 2 **3** NA
- What procedure do you follow when a patient and/or family member identifies an issue that presents a conflict in the care the patient is receiving? Problem 1 2 3 NA
- What programs have you presented to the community? 1 2 3 NA
- State the name of the code used when assistance is needed. Well performed 1 2 **3** NA

Page 1

Dr. Strong.

2. iPad Application



3. Feedback viewer

The screenshot displays the UQmarkup web application interface. At the top, the browser address bar shows the URL https://uqmarkup.ceit.uq.edu.au/_dev/projects/submissionmanager/14. The page header includes the UQmarkup logo, a "Logout" link, and a "Powered By" badge for CIT. Below the header, a breadcrumb trail reads "Home / Viewing assessment feedback for PHYL2064 - Draft Report". A green tip states: "To zoom, use ctrl+ and ctrl- (cmd+ and cmd-)".

The main content area is divided into two columns. The left column, titled "Audio Annotations", lists several annotations with their durations and page numbers:

Annotation	Duration	Page
Annotation 7	00:17	Page 1
Annotation 8	00:17	Page 1
Annotation 16	00:21	Page 1
Annotation 10	00:11	Page 2
Annotation 6	00:08	Page 2
Annotation 14	00:17	Page 3
Annotation 12	00:11	Page 3
Annotation 18	00:17	Page 3
Annotation 4	00:14	Page 4
Annotation 19	00:20	Page 4

The right column displays the text of the document being reviewed. It includes a paragraph about the negative regulation of T-lymphocyte activity and the CLTA-4 gene. Below this, a section titled "Main Signs/Symptoms" is highlighted with a red bracket, followed by a paragraph describing Hashimoto's Thyroiditis. Another section titled "Presence of Signs/Symptoms compared to Acute/Chronic" is also highlighted with a red bracket, followed by a paragraph discussing the acute versus chronic phases of Thyroiditis. A small audio icon and the label "Annotation 16" are visible next to the "Main Signs/Symptoms" section.

In the bottom right corner, there is a logo consisting of four overlapping circles labeled C, E, I, and T.

UQMarkup - Audio annotations

the negative regulation of T-lymphocyte activity, there is also an association with the CLTA-4 gene. It is important to realize that the genes implicated vary in relation to distinctive ethnic groups and that chromosomal disorders promote the onset of this disease. Some preventable environmental risks include exposing yourself to a high iodine intake, selenium deficiency and pollutants such as tobacco smoke. Other predispositions include infectious diseases and certain drugs.

Main Signs/Symptoms

Hashimoto's Thyroiditis presents with an enlarged neck or presence of goiter, dry skin, decreased concentration, fatigue, weight gain, depression, intolerance to cold, muscle cramps and leg swelling (A.D.A.M, 2012).



Annotation 16

Presence of Signs/Symptoms compared to Acute/Chronic

Symptoms differ in the acute verse chronic phase of Thyroiditis. The main distinction in the acute stage is that the thyroid gland becomes hyperactive, however it has decreased radioactive iodine uptake (RAIU) (Slatosky, 2000) (Refer to Figure 1).

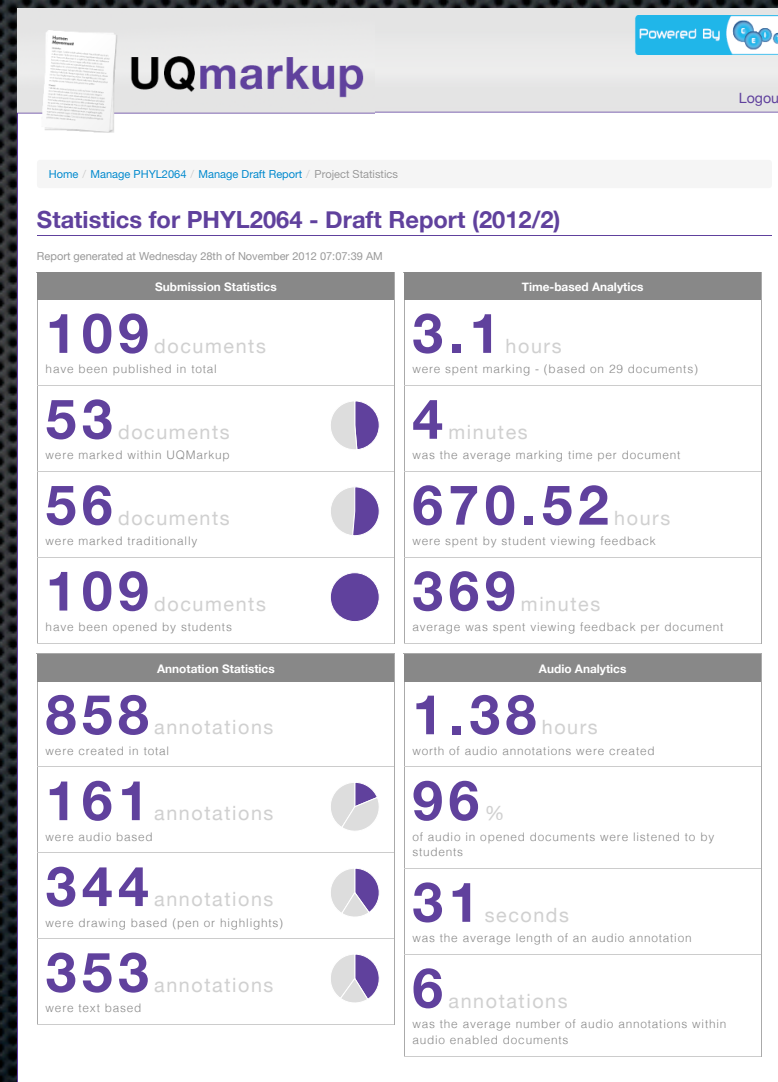
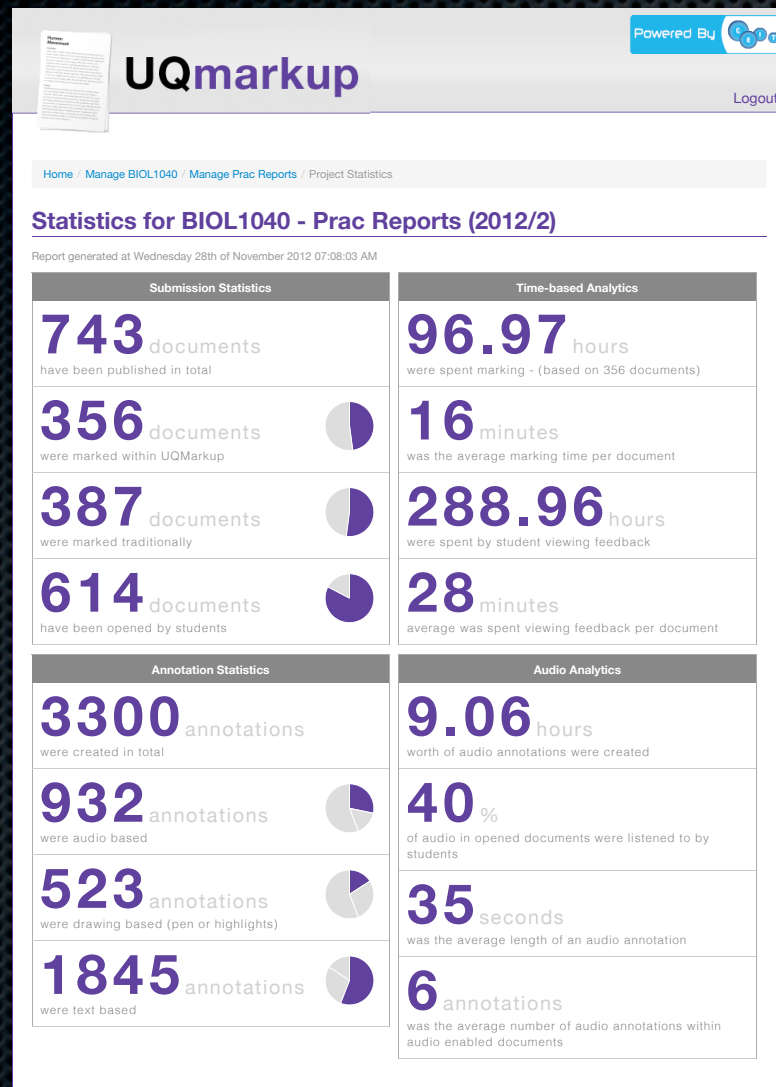


4. Learning analytics - data

- ✦ Markers
 - ✦ Time spent marking submissions
 - ✦ Number and type of annotations created
- ✦ Students
 - ✦ When students read feedback
 - ✦ How long they engage with it
 - ✦ How they move through the annotated document
 - ✦ How they listen to an annotation



Learning analytics






Examining the details



Draft Report - Timing Analytics

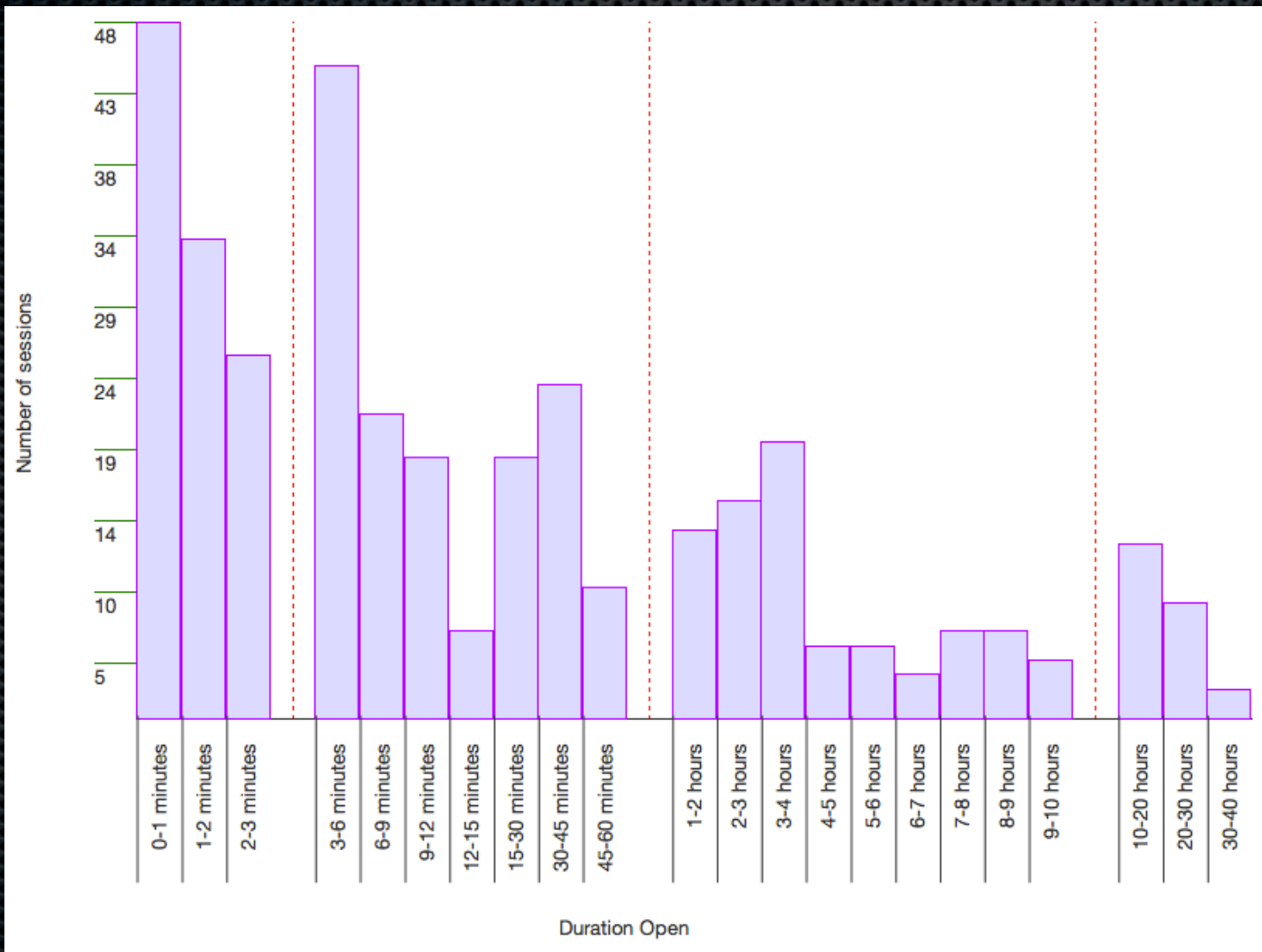
Statistics for PHYL2064 - Draft Report (2012/2)

Report generated at Wednesday 28th of November 2012 07:07:39 AM

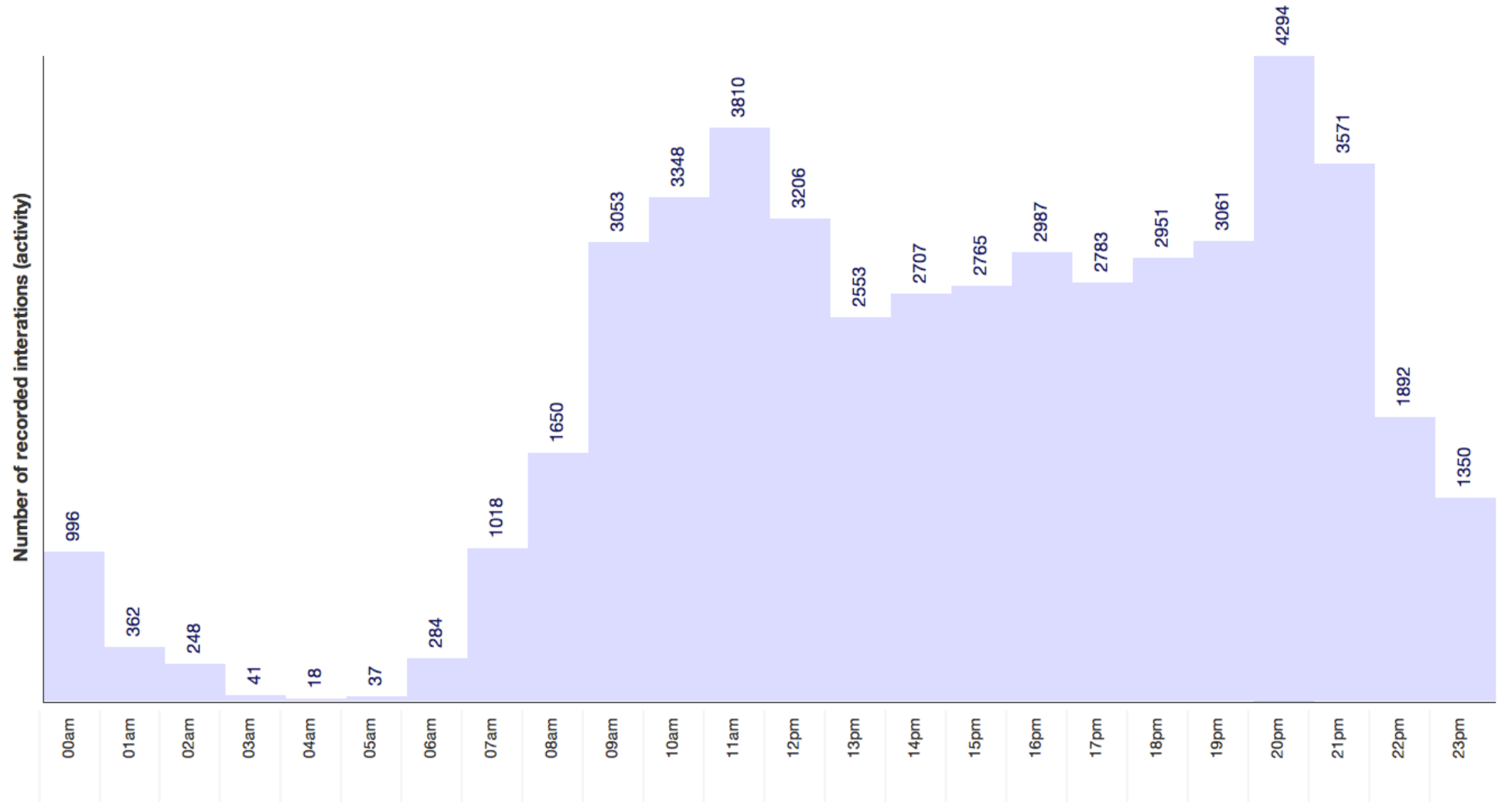
Submission Statistics	Time-based Analytics
109 documents have been published in total	3.1 hours were spent marking - (based on 109 documents)
53 documents were marked within UQMarkup 	4 minutes was the average marking time per document
56 documents were marked traditionally 	670.52 hours were spent by student viewing feedback
109 documents have been opened by students 	369 minutes average was spent viewing feedback per document

Investigating the data

Duration of open documents (Draft Report)



When do students read?



Examining the details



Draft Report - Annotation Analytics

Annotation Statistics

858 annotations
were created in total

161 annotations
were audio based



344 annotations
were drawing based (pen or highlights)



353 annotations
were text based



Audio Analytics

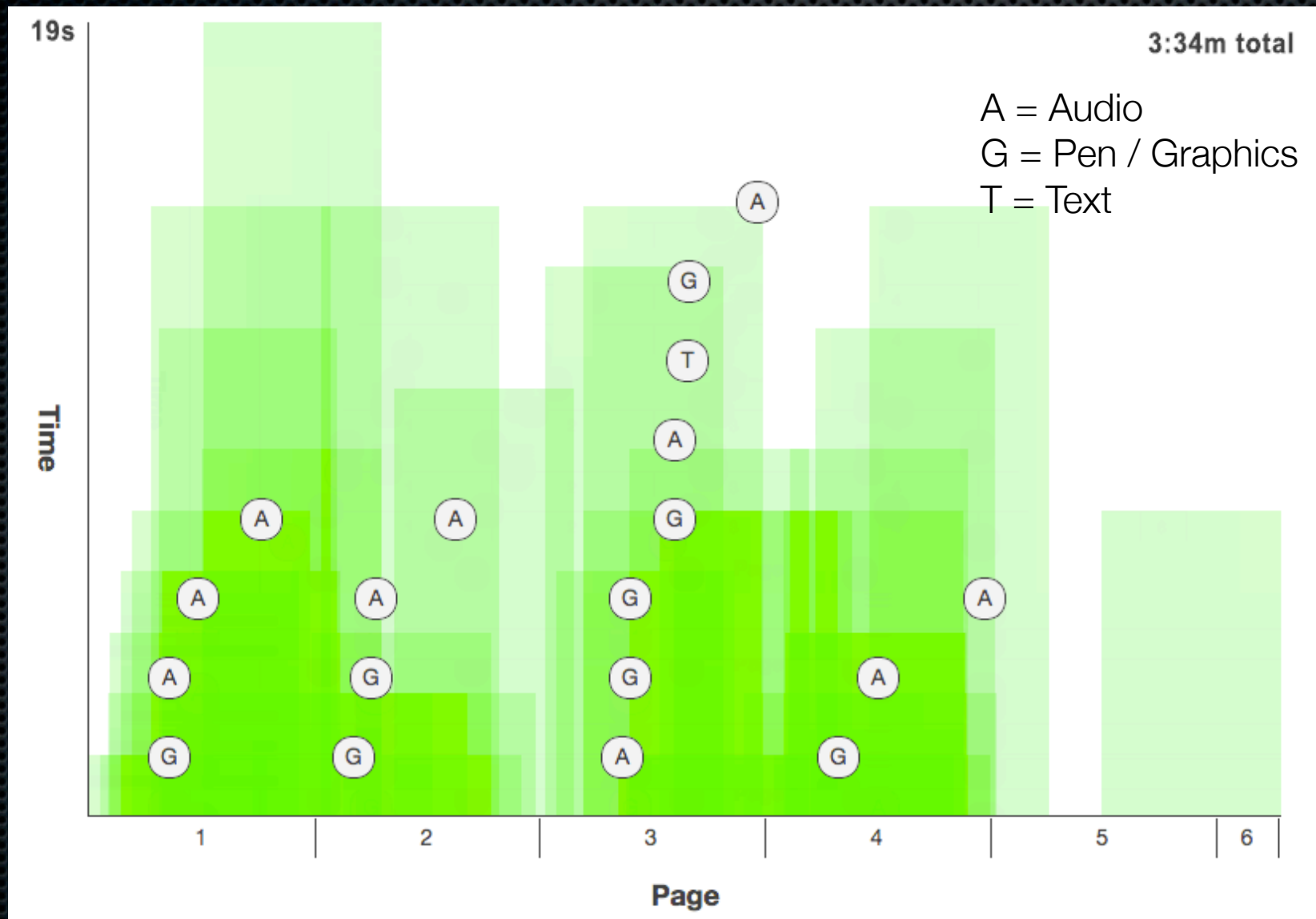
1.38 hours
worth of audio annotations were created

96 %
of audio in opened documents were listened to by students

31 seconds
was the average length of an audio annotation

6 annotations
was the average number of audio annotations within audio enabled documents

Per document analytics



Per document audio

 single play

 1 repeat

 2 repeats

 3 repeats

 4 repeats



Audio - Interviews (no audio)

“Well I prefer to see it written out and then what I actually do was I’d like tick off each sentence and you can read it as much as you want. I don’t know... I just think it’s easier to see it really ... see the words. I don’t know ... that’s just maybe my way.”

Student who didn’t receive audio



Audio - Interviews

“I found the audio a bit difficult, she sounded like [the marker] was speaking really quietly like [the marker] was trying not to disturb anyone else around [the marker]. But I liked that it was addressed to me and because you do build up a relationship with your tutor in the pracs.”

Student who did receive audio



Audio - Interviews (no audio)

“Well I heard from some of the other students that, especially from one girl. She got an audio recording and she said it was brilliant. She really liked it. ”

Student who didn't receive audio



Audio - Interviews

“...it can’t be ambiguous if you’re hearing someone say it. There’s less chance of it being ambiguous. Because sometimes with a comment you don’t really get what the person is trying to say, if they haven’t spent a lot of time choosing the right words. But if they say it ... everyone knows that you talk because you do it every day.”

Student who did receive audio



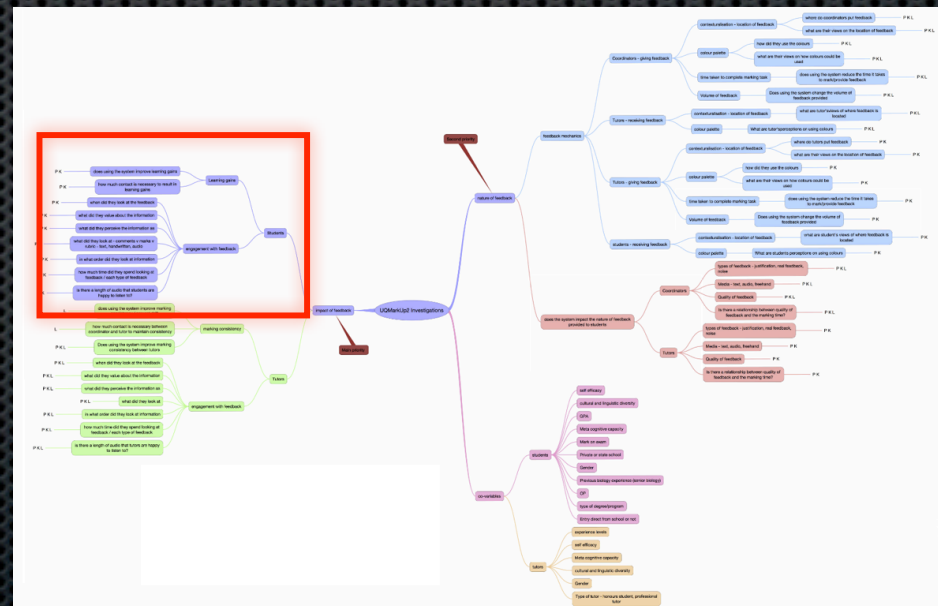
Audio annotations: Some pragmatic issues

- ✦ While *in-situ* audio feedback shows promise, there are some issues that arise:
 - ✦ “People won’t understand my accent”
 - ✦ “I had nowhere privately to record annotations”
 - ✦ “I felt like I was rambling”



Research in progress

- ✦ Still a huge amount of data to go through from the current trials
- ✦ More trials upcoming
- ✦ And **lots** more research questions...





Summing Up

- ✦ A first step into understanding how students use feedback (more data incoming in upcoming trials)
- ✦ Audio annotations allow for a more personalised and contextual way to provide feedback
- ✦ Response from students so far seems positive (novelty?)
- ✦ Some pragmatic issues around audio feedback
- ✦ Learning analytics provides us with a way to validate how students use this feedback



Future Directions

- ✦ What is the impact of feedback (both direct and longitudinal)?
- ✦ How do we best visualise this data - how is it valuable in practice?
- ✦ Does the reaction to audio increase/decrease with experience?
- ✦ Performance, conceptual understanding, affect, persistence, (ability to use concepts, gain, transference, retention) of feedback?



Thank you

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Available on slideshare soon